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A Guide to Consultant Research Assignments and the Ontario Joint Transportation Research Programme



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A Guide to Consultant Research Assignments and the Ontario Joint Transportation Research Programme

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Abstract: This document outlines the provisions and conditions under which research may be conducted by consultants and universities on behalf of the Research and Development Branch of the Ministry. Particular emphasis is placed on research funded under the Ontario Joint Transportation Research Programme.

Two examples of typical agreements are provided;

- A Memorandum of Agreement (Long Form), and
- An Executive Director's Letter of Agreement (Short Form).

Key Words: contract research, guidelines, consultants, universities

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A Guide to Consultant Research Assignments and the Ontario Joint Transportation Research Programme

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1/ Introduction

The knowledge, skills, resources and facilities of universities, research agencies and consultants from private industry play an important role in research and development work undertaken to improve those aspects of transportation within the purview of the Province of Ontario.

In keeping with the research procurement policy of the Ontario Government, the Ministry both solicits proposals and welcomes unsolicited proposals for external R&D work. Following evaluation of the proposals received, contracts are entered into for accepted proposals; either under the Ontario Joint Transportation Research Programme or by assignment to consultants.

The work is undertaken on a project-specific basis, under contract and funded on an annual basis. Projects cover a wide variety of subjects in the natural sciences, including engineering, and also in human and social sciences. Many investigations are multidisciplinary in recognition of the interaction between the sciences in solving overall problems. The work may be undertaken in Ontario or, if the need cannot best be met within the province, elsewhere in Canada or in other countries.

At the time of writing (December 1991) the Ministry is undertaking a major reorganization which includes determining the role and mandate of R&D within policy, planning, transportation regulation (and highway safety) and quality and standards divisions. While this is underway the R&D workplans for 1992-93 financial year (starting April 1) are being developed and projects assigned in accordance with the present organization.

The purpose of this guide is to provide information to universities, research agencies and consultants as to the administrative, technical and financial considerations governing the submission of proposals and the execution of approved projects for external R&D work for which the R&D Branch, Highway Engineering Division, is responsible. This work is mainly aimed at improvements in the design, construction, maintenance and operation of the Provincial Highway System. Proposals for R&D work in other aspects of transportation will be referred to or handled by other Divisions or Branches of the Ministry as appropriate to the subject matter. The Transportation Technology and Energy Branch undertakes highway related work on traffic management, vehicle systems and energy use. The Transportation Regulation Program funds a grant program for research on behavioural social and economic aspects of highway safety. Contact addresses are given in Section 12 of this guide.

2 / Ontario Joint Transportation Research Programme (OJTRP)

The OJTRP, dating back to 1956, is a long-established programme to carry out applied research and development work, principally at Ontario universities. Appendix A provides a brief history of the program and its objectives.

2.1 / Programme Projects

The programme is project specific. A project is approved as part of the programme following receipt and evaluation of a research proposal(s), developed and submitted by a staff member (the investigator) and endorsed by the administration of the university or research establishment for whom he/she works.

Assignments will only be made directly with investigators who are full time staff members if the Ministry is provided with an assurance from the institution concerned that the investigator has the concurrence of the institution to do so and to use any facilities of the institution included in executing the proposal. (This condition is in keeping with the second objective of OJTRP as stated in Appendix A.)

The programme is for contract, not grant R&D work. An agreement is drawn up between the Ministry and the university for each project, preceded, where necessary, by a letter of intent.

The agreement commits the Ministry to the total project (or identified phase(s)) at the time of approval; funding, however, is on an annual basis.

3 / Consultant Assignments

The Ministry assigns R&D work to consultants having particular expertise in a subject identified as requiring investigation or study. The "consultant" having the expertise may be a research agency, private company, or individual. Projects assigned are usually for applied R&D work covering identified tasks. These tasks may be simply input to an internal Ministry study and only acknowledged. However, the consultant may well execute the total reportable project and receive all credit.

3.1 / Consultant Projects

Consultant assignments are project specific. Proposals from consultants are evaluated and recommended to the Ministry's Consultant Assignment Committee for approval. Upon approval, an agreement is prepared and executed, preceded, where necessary, by a letter of intent.

4 / Administrative Procedures

Both OJTRP and Consultant Assignments follow similar procedures for the solicitation, submission and evaluation of proposals. There are no application forms to fill in, Sections 5 and 6 provide details of procedures up to contract award. The general conditions of contract (project agreements), administration, technical monitoring and reporting of projects are also similar. As discussed in Section 7 of this guide, either a short (letter) or long form of agreement is used depending on the value and complexity of the work. Application of the general and special conditions of contract is addressed in Sections 8 through 12 of this guide.

5 / Solicitation and Submission of Proposals

Proposals may be solicited or submitted at any time of the year. However, since the Ministry operates on a financial year of April 1 to March 31, the aim is to solicit, receive and evaluate as many proposals as possible during the first quarter of each calendar year so that work can start as soon as funds are to hand. It is important to note that in soliciting proposals, the Ministry offers no guarantee that one will be accepted.

5.1/ Research Needs Statements and Request for Proposal (Terms of Reference)

The Ministry identifies needed R&D work to universities or consultants in one of two ways.

- (i) Each fall the R&D Branch, in consultation with its clients in the Ministry, identifies problems, often of a more basic and long term nature, which may be addressed under OJTRP. The resulting R&D Needs Statements are then distributed about the end of December to the Research Administrators at Ontario Universities and to other research agencies, consultants or others known to have, or to have expressed capability in the particular subject. Submissions in response to this general solicitation are due in mid-February in order that a final work plan against budget can be struck by April 1st.

An R&D Needs Statement endeavours to outline the problem to be investigated, the research objectives, the benefits sought and means of implementation, background resource material, and the person to contact in the Ministry for further information. The statement also gives an indication of the effort thought appropriate to addressing the problem by way of cost and

duration. It is emphasized that these are not prime pre-determinants as to the acceptability of proposals.

- (ii) Throughout the year Requests for Proposals are issued to consultants for R&D work or associated professional services needed in support of approved R&D projects. These requests may cover the total project or a component of an overall project being undertaken in-house. Proposals are due by a given date and the time for preparation will depend on the complexity and urgency of the work. In these requests the work to be undertaken is likely to be closely defined with specific tasks, to be of a more applied nature than an OJTRP project and to have a specified completion date.

5.2/ Unsolicited Proposals

In addition to proposals solicited as above, the Ministry welcomes unsolicited proposals. These may be received at any time, but preferably by mid-February each year. These may be from an individual at a university (with the endorsement of the university research administration) or a consultant who, because of his/her own particular interests, knowledge, and experience, has identified a subject within the interests of the Ministry requiring investigation or study. Such unsolicited proposals will be evaluated as to appropriateness and considered for available funding in the same manner and priority as for solicited proposals.

5.3/ Preparation of Proposals

Before submitting either solicited or unsolicited proposals, the originator is urged to contact the appropriate technical person in the Ministry for any clarification of the Needs Statement or Request for Proposal, to talk over ideas, or to determine general suitability and any features that might be incorporated to make the investigation more meaningful for the resolution of the problem in mind. The appropriate person in the Ministry will have been identified in the request, or may otherwise be known personally to the investigator because of mutual interest and professional contacts. If not, the Director, R&D Branch should be contacted.

Before preparing a proposal, the originating investigator is urged to read the provisions of the long form of agreement (Appendix A to this guide) which will usually govern the execution of the project. Appendix B provides a short form of agreement used for certain limited scope, straightforward, usually short term projects, or requirements for professional/technical R&D services.

5.4 / Details Required in the Proposal Submission

The proposal is required to be a complete document in itself since, by reference in Schedule A of the Agreement to carry out the work, it becomes a part of the contract. Furthermore, one proposal is usually competing with another developed in response to the same R&D need and both seeking the same project funds. Accordingly, it is usually not sufficient to only refer to the R&D Needs Statement or Request for Proposal, adding a few lines and outline estimated costs.

In particular, for OJTRP, the investigator should outline his/her approach to the problem and the path to a solution. This might include comments on the objectives and benefits sought, the present state of knowledge, alternative lines of investigation based on techniques and methodologies available and justification for the one chosen, any phasing or related activities which may (or should) constrain progress or affect the proposed work schedule, and, of course, his/her qualifications, knowledge, and experience to undertake the work.

The following specific details are required:

- (A) the general line of investigation proposed and the methods and procedures to be followed in the project as a whole or in each phase;
- (B) the "best" starting date and the completion date together with a work schedule for various phases of the project which identifies any interim completion dates;
- (C) estimated costs (It is important to read Section 8.7 through 8.14 and 8.17 of this guide, at this point, to appreciate the basis of funding and financial control):
 - (i) relevant to each phase (if appropriate) and in total;
 - (ii) broken down on a financial year basis from April 1 to March 31; and
 - (iii) the detailed make up of the TOTAL estimate as related to items of work proposed. Specifically identify the following cost items (which are essential to preparing Schedule A where the long form of agreement is used -- See Sections 7 and 8 of this guide):
 - (a) remuneration of staff (See Section 8.12 of this guide for important details that must be included in proposal);
 - (b) capital equipment costs;

- (c) computer services, costs and basis of the rates (see Section 8.17);
- (d) report preparation (lump sum);
- (e) overheads (See Section 8.10 of this guide);

Note: Do not include the Federal Goods and Services Tax (7%) in estimated costs (see Section 9.8).

- (D) location(s) where the project is to be carried out, including any visits planned to other research organizations, etc., essential to the project;
- (E) the available facilities for carrying out the proposed work such as laboratories, major testing equipment, information resources, and the like;
- (F) the investigator and principal staff, listing their particular qualification, expertise, experience and publications that are relevant;
- (G) any part of the project that would be subcontracted, by item and name of the subcontractor;
- (H) services or facilities to be furnished by the Ministry such as access to records and data on file, assistance with field work, use of Ministry equipment or computer services. In these respects the policy of the Ministry is to co-operate in every way possible, contingent upon resources being available and the minimum of interference with normal operations.
- (J) any special conditions or information pertinent to the proposal or project, if approved.

5.5 / Submission of Proposals

Proposals must be submitted in triplicate to arrive by the close of business on the due date.

They should be addressed as shown on the Research Needs Statement or Request for Proposals or otherwise to the Director, R&D Branch.

Proposals must be submitted under cover of the letterhead of the organization concerned and in case of those from an individual investigator at a university, research agency or with a consultant, the proposal or the covering letter must be signed or countersigned by a duly authorized official of the university, agency, or consultant.

Receipt of all proposals solicited or unsolicited, will be acknowledged and a likely date for acceptance/rejection indicated.

6 / Proposal Evaluation and Project Acceptance

Proposals received are evaluated by the Ministry as to completeness and likelihood of success in meeting the stated R&D objectives considering: the overall approach suggested for the investigation and the specific methods and procedures to be used; the staff, facilities and resources to be deployed; the time frame and; the estimated cost. In order to recommend and justify between competing proposals for the same project this aspect of the evaluation is undertaken by a technical team calling upon expert advice as may be needed. It should be emphasized that the evaluation recommendation is not based solely on the lowest cost estimate or meeting the indication of effort cost shown on the Research Needs Statement. Many other pertinent factors are weighed in. (Copies of the standardized evaluation criteria used are found in Appendix B, but, the evaluations of specific proposals remain confidential.)

Proposals solicited or unsolicited for OJTRP face an upper limit on total annual funding and this requires prioritization of new projects within the R&D budget considering carry-over funds required for continuing projects. Consultant assigned projects, in response to requests for proposals, usually relate to projects which have already been approved within the R&D budget for the financial year. However, should the estimated cost of proposals received exceed the sum allowed for in the original approval of the project, then, naturally, the consultant assignment is subject to a review as to whether the additional funds can be made available or whether the scope of the work must be modified.

In the case of new OJTRP projects submitted in the early part of the calendar year, the objective is to advise of acceptance early in April. Acceptance of consultant assigned projects is made known as soon as possible after the Ministry's Consultant Assignment has considered the recommendation for acceptance. The Committee usually meets each week. Notification of acceptance is either by letter of agreement or letter of intent. The formal agreement following the letter of intent may take a few weeks to execute but the agreement will be dated as of the letter of intent.

Except in very special circumstances dictated by the nature of the project, the agreement is with the university/consultant and not directly with the investigator/project manager involved.

7/ Types of Agreement

As appropriate, the Ministry uses two types of agreements for procurement of R&D services from universities/consultants covering both major long-term projects and shorter limited assignments.

7.1/ Long Form of Agreement

The long form of agreement is executed for all major external R&D projects under OJTRP or as consultant assignments. It is "long" simply because, as further discussed in Section 8, it has to cover many eventualities and significant expenditures, usually over a long time.

7.2/ Short Form of Agreement

The short form of agreement is a letter setting out the general terms and conditions for provision of limited, straightforward professional/technical R&D services as defined by the Ministry or in a proposal submitted. The services to be provided are defined in an attached Schedule "A". Special conditions of similar form to those used in the long form of agreement may sometimes require incorporation in Schedule A. For example; one of those related to patent rights (sec 9.2) or computer programs (sec 9.3).

Otherwise The Short Form of Agreement is straightforward and generally limited to services under \$25,000 (A blank copy is found in Appendix D to this Guide). The letter of agreement is issued in triplicate, already signed on behalf of the Ministry. The consultant is asked to sign and return the original and one copy as accepting the stated terms and conditions. Scheduled A is initiated by both parties.

8 / Long Form of Agreement - Indexed Commentary

A blank copy of the standard long form of agreement is provided as Appendix C to this guide. Other than on the cover page and by interchanging the words "university" and "consultant" as necessary wherever they occur, all variations from one project to another are specified in Schedule A attached to, and forming part of, the agreement.

Schedule A is drafted by the Ministry on the basis of the details submitted in the proposal or subsequently negotiated.

The agreement is signed in execution by the authorized officials of both parties who also initial each sheet of Schedule A.

The following commentary addresses on some of the more important items which should be kept in mind when preparing proposals or while carrying out the project .

8.1 / Approvals Required in Writing from the Ministry

The agreement provides for subsequent variations, found necessary as the work proceeds, to be approved by the Ministry in writing. This authority is assigned to the Director, Research & Development Branch (Section 14). Some of the more important items requiring such approval are:

- Change in the scope of the project (Section 2 applies);
- Any significant changes related to project items in Schedule A (Sections 3, 5(1), 6(1b), 6(1d), 6(1e), 6(1g) apply);
- Travel outside Ontario or to locations not listed in Schedule A (Section 6(1h) applies);
- Changes in allocation of total or annual funds shown in Schedule A (Section 6(3a), and 6(3b) apply);
- Disclosure of data, etc. (Section 10(3) applies);
- Presentations, papers, and publications prior to completion of project and for six months thereafter (Section (12(4)e) applies);
- Assignment of work outside of that provided for in Schedule A (Section 15) applies).

Requests for such approvals should be directed in writing to the Director, R&D Branch, outlining the specific permission required and the supporting details.

8.2 / Technical Provisions

Details relating to the methods, procedures, facilities, staffing, and resources to be employed are to be found in Sections 1, 2, 3, and in Schedule A.

Section 12(5) covers Canadian Metric System units of measurement.

Sections 10 and 11 relate to data and documents required for the project or generated during the project.

Section 13 relates to inventions and patents.

8.3 / Project Monitoring (Ministry Project Manager or Liaison Person)

For each project the Ministry names a "monitor" whose job it is to serve as the technical link between the investigator and the Ministry. The role of the monitor is to keep an eye on progress and the direction the project is taking, to provide technical input to best relate the project to Ministry needs, and to ensure that services, data or other co-operation to be furnished by the Ministry are available as and when required.

Usually, the monitor will be the person in the Ministry most knowledgeable in the subject area of the project.

The monitor is not directly concerned with administrative or financial approvals which are handled by the Director, R&D Branch, though he/she may help in an advisory or transmittal role.

8.4 / Timing, Completion, and Default

Section 5(1) and Schedule A, together with the work schedule in the proposal, cover the time frame for completion of the project. Sections 5(2) and (3) provide for action to be taken in default.

8.5 / Progress and Final Reports

Section 12(1) covers the requirement for submission of progress reports at quarterly intervals or at the end of each phase of the project (single copy).

A final report in the form specified in Section 12(3) is required at the end of the project by the completion date stated in Schedule A. This report is subject to review (Section 12(2)) and its acceptance by the Ministry formalizes the closing of the project and release of any holdback. As provided for in Section 6(5), a holdback of 10% on each invoice is applied pending receipt of an acceptable final report.

Special provisions in Schedule A will cover any requirement for a draft report or where the final product of the project is other than a written report (see 9.5 and 9.3 of this guide respectively).

Final reports are to be in camera-ready copy (see Section 9.6 and Appendix E of this guide).

8.6/ Publication of Reports, etc.

Publication of the report or other information about the project is governed by Section 12(4). *It is emphasized that the Ministry places no restriction whatsoever on the publication of any material generated under OJTRP project agreements.* (There may be very occasional exceptions where limited confidentiality is expected to be needed for a period - for instance in development of a process having commercial potential. If anticipated, this special condition will be stated in Schedule A). Temporary restrictions are, however, placed on the publication of material while the project is underway, and for six months thereafter, to ensure that the material in question is scientifically accurate and justified in light of the ultimate findings of the project.

For certain consultant assignments for professional services or where the findings are intended as a partial contribution to an in-house R&D project, the question of separate publication of a report will not arise. As discussed in 9.3 of this guide, in this situation and for computer programs a Special Condition will be placed in Schedule A.

Approval in writing from the Ministry is required for:

- (a) Papers and articles to be presented or published during the period of temporary restrictions (duration of the project and six months thereafter).
- (b) Travel (cost reimbursement) to present a paper on the project during the course of the project (Section 6(1h)).

8.7/ Financial Provisions

Section 6 governs the financial arrangements. Details are given in Schedule A for:

- (a) Project Staff and Rates of Remuneration (and Fringe Benefits)
- (b) Capital, Special Equipment, or Services Authorized
- (c) Computer Services Authorized
- (d) Report Preparation
- (e) Overheads
- (f) Funds Allocated

8.8 / Funding and Financial Control

Attention is drawn to the following:

- (a) Under "Funds Allocated", a total cost upset limit is established for the project and for a specific allocation of funds for each financial year (April 1 to March 31).

In order to make the basis for the funding of the project clear, especially for projects carrying over or retaining holdbacks into the next financial year, the allocation of funds is shown in Schedule A as follows:

"The total amount payable by the Ministry under this agreement shall not exceed \$x. Subject to appropriation by the Legislature, funds have been allocated as follows in accordance with the terms and conditions of this agreement, the project work schedule and the completion date:

	Year Ending March 31, 19_	Year Ending March 31, 19_	Total
Amount Invoiced (maximum)			
Funds Allocated (amount payable)			
Holdback			

This is a revision in format only over the one used for many years. There is no change in the items or amount or manner payable.

Short form of agreement projects, in which the funding allocation is displayed in the body of a letter rather than Schedule A, rarely carry over to the following year. Where they will, the above display will be incorporated in the letter of agreement. See also Section 9.4 on holdbacks.

- (b) Changes in Funds Allocated require approval in writing from the Ministry based on revised estimates and reasons submitted by the university/consultant (Sections 6(3a, and b)).
- (c) "Financial Management" requires a co-operative effort between the Ministry and the university/consultant if the limited annual budget for external R&D work is to be used effectively. It is advantageous to both parties to move funds around between projects during the year to match progress or to permit a new line of the investigation that opens up to be followed and to establish estimated costs of carry-over work to the next financial year as soon as practical so that the allocation of funds to start new projects is not impeded.

It is particularly important at the end of each financial year that invoices be received on time so they can be paid from that year's funds and not become carry-overs to the exclusion of the corresponding value of new project work that might otherwise be started.

To achieve these measures of financial control:

- (1) The university/consultant is asked to advise the Ministry at any time of the year, if it becomes apparent that costs will exceed or be less than the estimates by 10% or more (Section 6(3b)).
- (2) Financial reviews are made as appropriate to progress as the work proceeds and to identify any changes in the allocation of funds during the year or as carry over to the next financial year. As far as practical the Ministry project manager, investigator (university or consultant) should be jointly involved in all such reviews.
- (3) Invoices for all work completed up to March 31 are to be submitted not later than the fifth working day of April (Section 6(3c)).

8.9 / Reimbursement and Audit

Reimbursement for costs incurred in accordance with Section 6 is normally by interim payments based on itemized invoices (Section 6(4)). A 10% holdback is applied to each interim payment pending receipt of an acceptable final report (Section 6(5)). Vouchers and supporting documents are not required with invoices but must be retained and made available for audit for three years after completion or termination of the project (Section 6(6)).

Recent audits have noted on several projects:

- (1) inadequate itemization on invoices to justify the total reimbursement claimed;
- (2) frequent failure to submit interim invoices promptly - not less often than quarterly is specified;
- (3) poor record keeping as to time spent on a project and sparse supporting documentation.

Failures in the first two respects may delay payment due. Lack of retained documentation makes audits much more protracted and embarrassing to all concerned.

In order to avoid delays due to the need to call or write you for clarification of specific invoice items, a "sample invoice" is given in Appendix F showing the details required. The layout of the invoice can, of course, conform to your usual practice, provided the required information appears.

8.10/ Overheads

An amount for overheads is provided for in Section 6(2) to be calculated in accordance with the provisions of Schedule A.

Five approaches to determining overheads are currently in use, depending on the nature of the project and whether it is undertaken under OJTRP by a university or is a consultant assignment.

- (a) **No specific allowance for overheads.** Overheads are included in appropriate items of the estimate. (This is a rarely used approach and is usually limited to small projects with an individual consultant who is working essentially without organization support.)
- (b) **Lump Sum.** (Again, a rarely used approach and limited usually to a project where a fixed overhead is incurred which is independent of the amount of work performed.)
- (c) **Payroll Cost times a factor.** (Used in some consultant assignments where the project is staff-intensive.)
- (d) **x percent of the amounts payable** under Section 6(1). (Common form of overheads on OJTRP and consultant assigned projects.) The x% may vary from project to project and university/consultant to university/consultant to reflect the complexity and cost of the services and facilities used by the project. For example, a state-of-the-art report written in an office as compared with an experimental project using the facilities of a laboratory for much of the work. Different x% may be appropriate to certain items, e.g., travel where the university/consultant is not involved in an overhead for such disbursements. The commonly accepted overall value for "x" is 30% with 2% applied to travel items.
- (e) **A sliding scale as follows:**

x% of the amounts payable under Section (6) (1) on the first \$10,000 and x — 10% on the remainder of the total amount, except that the amounts payable for capital equipment under subsection b, for communications and shipping under subsection f, and for travelling expenses under subsection h shall attract an overhead of 10%. In determining the total amount of

overhead payable at $x\%$ or $x - 10\%$, the items attracting a 10% overhead rate shall first be deducted.

(The intent of the sliding scale is to more realistically reflect that overheads depend on the size of the project, that there is a front-end loading for general administration, and that capital equipment, communications, and travelling do not involve the university/consultant in overhead expenses for administrative and physical services to anything like the same extent. The sliding scale is mainly used for OJTRP projects: in particular for those of significant cost (over \$50,000).

The project proposal should state the desired manner, percentage amount(s), factors or sums by which the overheads are to be determined. The matter will then be open to negotiation.

8.11/ Capital Equipment

Sections 7(1) and (2) note special requirements relating to capital equipment which becomes and remains the property of the university/consultant after dedication to the project unless the Ministry has predetermined it has a specific use for it.

8.12/ Project Staff - Rates of Remuneration

For OJTRP projects at universities, it is convenient and customary to relate faculty staff remuneration to their university salary, to pay the going university rate for graduate students, research assistants, technicians, and others engaged on the project.

For these projects the following provisions are included in Schedule A:

Salaries or wages of persons directly engaged on the project calculated on the following basis and to include required fringe benefits:

- (i) University staff for the time spent exclusively on the project calculated at a daily rate equivalent to one two-hundred and twenty-fifth (1/225) of the individual's annual salary paid by the university in respect of normal teaching duties.
- (ii) Graduate assistants assigned to the project in partial fulfilment of the university's requirements for a Master's or Doctorate degree or research assistants for time spent on the project calculated at the current daily rate for such persons at the university.

- (iii) Technicians, machinists, labourers, and others necessarily engaged on the project for time spent exclusively on the project calculated at current rates for such employees at the university.

Note: "Current rates" covering (ii) and (iii) must be stated in the proposal.

For Consultant Assigned projects and OJTRP projects not at universities the project staff, positions, and corresponding rate of remuneration are individually listed in Schedule A. Accordingly, the project proposal must include these details and, wherever possible, the rates proposed should be geared to some recognized daily or hourly scale. For example, in the case of consulting engineers, that agreed between the Ministry and the Consulting Engineers of Ontario based on APEO suggested rates. It is recognized that because of the highly specialized knowledge and capability required in R&D work such standard rates may be exceeded in the case of certain specialists and principals working on the project.

Note that the rates used in university agreements include fringe benefits. In other OJTRP or consultant agreements, fringe benefits may be included in the individual payroll rates or they may be separately identified as an actual cost.

8.13/ Cost of Report Preparation

Any reimbursement for report preparation is covered in Schedule A by an upper limit lump sum, (Section 6(1)g) to include all associated typing, word processing, and drafting services to produce the final manuscript in the form required in Section 12. The lump sum should be stated in the proposal.

8.14/ Lump Sum Contracts

While reimbursement for staff on a time basis is usually the most appropriate method for R&D projects, since the precise course and extent of the investigation usually cannot be defined beforehand, there may be occasions where an exact estimate can be made related to particular items or phases of work. In such cases, Section 6(1) of the long form of agreement would govern reimbursement for the agreed fixed costs specified in Schedule A.

8.15/ Disclaimer (of Liability)

Legal responsibility for consequences arising from applying the findings of a project is covered by a simple disclaimer clause printed in all copies of final reports on each project. This clause (Section 12(6)) reads as follows: "This report is published without prejudice as to the application of the findings."

8.16/ Canadian Metric System Units of Measurement

Section 12(5) states the units of measurement to be displayed in final reports. The measurement system used during the course of the work is left to the choice of investigator but the Ministry encourages use of the Canadian Metric System wherever practical.

8.17/ Computer Usage

The long form of agreement recognizes that two different sets of circumstances may apply to using computers. Firstly, a real and identifiable cost may be incurred to the project. Or secondly, an available computer, already used for other day-to-day purposes, may be used on the project at little or no direct cost. Section 9.7 provides further details.

9 / Special Conditions

The following considerations may affect some external R&D work and require Special Conditions in Schedule A attached to, and forming part of either the short or long form of agreement. Such special conditions supersede any requirement in the body of the agreement which is no longer relevant.

9.1/ Professional Liability Insurance

As a consequence of the Professional Engineers Act 1984, attention is drawn to criteria governing professional liability insurance thereby now required.

Situation Criteria

External R&D projects follow upon MTO (Research and Development Branch) issuing Research Needs Statements (RFPs) or otherwise receiving unsolicited proposals. In addition, the need may arise for professional consulting services in support of R&D projects being carried out internally. The responding researchers or consultants may be members of a firm, agency, university, or may be acting as individuals without affiliation. Furthermore, as dependent on the work to hand, they may be equally qualified to offer their services by virtue of their expertise in one or more of the sciences or in engineering. For those offering their services who are "engineering consultants", the matter of Professional Liability Insurance as required by the Professional Engineers Act 1984 arises. The matter is further complicated because most R&D projects are experimental or investigative of physical phenomena, in which case the engineer may be practising as a scientist and may be competing for work against other scientists not governed by the Professional Engineers Act and costs associated therewith.

Application Criteria

In these circumstances, where an engineer does not hold forth in his proposal to be offering professional engineering services and where the Ministry has not specifically defined the work as professional engineering in the request for proposals, then the Ministry will not insist that the consultant holds liability insurance as required by the Professional Engineers Act 1984 or provides a Disclosure Notice in lieu thereof as a requisite for the assignment. Should the circumstances, scope and nature of the work change, then the Ministry may at any time require, at no extra cost to the Ministry, that the consultant comply with the Act. Where the services are defined as professional engineering, then the Ministry reserves the right to require the consultant to hold professional liability insurance rather than provide a disclosure notice.

9.2 / Patent Rights

Section 13 (1) (2) and (3) of the long form of agreement covers patentable rights. While the Ministry prefers to retain these, it is willing to consider exception on a case by case basis. A request for exception may be made in writing prior to the execution of the agreement. Alternatively, should unforeseen developments arise, the request may be made during the course of the work, but not later than with the final report.

In considering the matter the Ministry applies criteria which include (but are not necessarily limited to):

- (1) The likelihood of invention arising because the originality of the research proposed, or later devised by the investigator exceeds the approach suggested by MTO (in, for example, the Research Needs Statement inviting proposals or advisory discussions with MTO staff).

and

- (2) The work is intrinsically of an exploratory and innovative nature, unlikely to succeed if only established methods and knowledge are applied to the new situation.

and

- (3) (a) There are distinct prospects for the wider and more speedy implementation and commercialisation of any invention, to the benefit of Ontario, if exploitation is handled by the research agency itself rather than MTO.

and (b) The research agency in question has an established process and track record for the exploitation of inventions.

and

(4) Any non-transferable obligations or interests the Ministry or research agency has with respect to prior work (its own or that of others) upon which a new invention may, in part, rest.

and

(5) Whether the project in question stands alone or is one of a series, some of which are (or will be) performed by others, such that any invention arising only from one phase would be incomplete and of little application.

Many years of experience indicates, that with the unpredictability of an invention actually arising and the uncertainty as to the best means of proceeding with exploitation if it does, that the Ministry policy of rarely giving an initial blanket approval for the transfer of patentable rights, but, of considering situations as they later arise is generally in the best interest of both parties. The above noted considerations apply equally to a subcontractor, identified in Schedule "A" or later approved, as they do to the prime research agency.

9.3 / Products of Projects Which are Not Written Reports

One of the following special conditions will be included in Schedule A of either the long or short form of agreement for projects where the final product of the project is other than a written report.

- (a) No final report in writing is required for this project and completion of the project shall be determined as the last day upon which the specified professional/technical research services are provided. The 10% holdback applied to each interim payment will be released upon completion of the project.
- (b) One of the products of this project is a computer program which shall be provided to the Ministry as part of the final report on the project. The computer program shall comprise all necessary software, source code, operational and technical manuals. For completion of the project the specified computer program must be found to be fully operational and acceptable to the Ministry. The 10% holdback applied to each interim payment will be released upon completion of the project.

The computer program shall be the sole property of the Ministry, however the Ministry, upon request in writing, will grant the author of the program a right to retain a copy thereof for his/her personal non-commercial use without any guarantee as to the future validity or maintenance of the program by the Ministry.

- (c) No final report in writing is required for this project. Instead a computer program; comprising of all the necessary software, source code, operational and technical manuals shall be provided to the Ministry. Completion of the project shall be determined as the date on which the specified computer program is found to be fully operational and acceptable to the Ministry. The 10% holdback applied to each interim payment will be released upon completion of the project.

The computer program shall be the sole property of the Ministry, however the Ministry, upon request in writing, will grant the author of the program a right to retain a copy thereof for his/her personal non-commercial use without any guarantee as to the future validity or maintenance of the program by the Ministry.

It should be noted that these special conditions also determine the completion of the project and hence the release of any holdback.

9.4 / Holdback

A primary purpose of the 10% holdback on each interim payment is to ensure on-time completion of the project by submission of a final report (or computer program).

In cases where no report is required ((9.3) (a) above) and the project consists of a number of discrete professional/technical services, each complete in itself and invoiced as the work proceeds, the Ministry will no longer apply a 10% holdback to each interim payment. This relaxation will apply only to assignments covered by the short form of agreement and valued at less than \$15,000.00.

9.5 / Draft Reports for Review Purposes

For some projects it may be advantageous to review the final report of the project when still in draft form in order to avoid corrections to camera-ready copy of the final manuscript. When these circumstances are determined to apply before the agreement is executed then a special condition will be included in Schedule A.

The following condition will then supersede Section 12 (1) b and (2) of the long form of agreement:

"A draft of the final report is required not later than 30 days before completion of the project. The Ministry shall review this draft final report, and if necessary, negotiate any changes which may be deemed desirable in the interests of clarity, completeness or consistency prior to submission of the final report."

It may also be possible to follow the same practice without the formality of this special condition in the agreement provided both parties agree. It should be noted that this draft report review does not extend the completion date which is set by receipt of an acceptable final report.

9.6/ Final Report - Camera-Ready Copy

For some time the Ministry has been encouraging the submission of final reports in camera-ready copy form so as to speed publication and reduce costs. In the present long form of agreement the associated requirements are stated in Clause 12 (3)(a) and (b). The Editor, Technical Publications, Research and Development Branch, has recently drafted "Guidelines for Preparation of Camera-Ready Copy" which specify standards acceptable to the Ministry for both the paper and disk copy of the final report.

A copy of these guidelines is found in Appendix E or may be obtained by writing to the Editor or by calling (416) 235-4704.

9.7/ Computer Usage

Two sets of circumstances apply to charging for using computers. Firstly, a real and identifiable cost may be incurred to the project. Or secondly, an available computer, already used for other day-to-day purposes, may be used on the project at little or no direct cost.

Considering projects under the long form of agreement, Section 6(1)e governs payment for computer services charged back by an in-house computer centre or purchased from an outside agency. On the other hand, the use of micro- or mini-computers (hardware and software) already existing in an office or laboratory working on the project, or which are temporarily on loan from elsewhere in the organization, is considered to fall under the exclusions of Section 6 (1)b and d and not to attract separate payment.

New computing equipment (including system programs) required for the project is regarded as capital equipment governed by Section 6(1)b. New application software required for use on the project, on either new or existing computers, and consumables, fall within chargeable costs for materials, supplies, etc. under Section 6 (1)c.

In these lights, computer services or computing capital equipment which are to be paid for by the Ministry under Section 6 (1)e or b, respectively, are identified in Schedule A or must be subsequently approved by the Ministry in writing.

Where the Ministry is to provide access to data or processing through its own computing facilities, then this is detailed under "Services or other items to be provided by the Ministry" in Schedule "A" and is at no cost except for those of telecommunications (Section 6 (1)f) if used.

Original computer programs developed during the course of the work fall within the definition of "subject data" (Section 11). Where a computer program is a deliverable product of the project, this is identified under "Special Conditions" in Schedule A. (See Section 9.3 of this guide).

Similar considerations to those for long form of agreement projects, govern acceptability of proposals and drafting Schedule A's for short (letter) agreement projects.

9.8/ Goods and Services Tax (with effect. 91-01-01)

The Ontario Government is not subject to payment of the Federal Goods and Services Tax (7%). Accordingly this tax should not be included in estimated costs when submitting proposals, or on invoices for payment.

Clause 16 (Long Form of Agreement) and the Short Form of Agreement contain the following statement of use:

"In order to facilitate any input tax credit claim; it is certified, by the signer on behalf of the Ministry of Transportation of this agreement, that the goods and services furnished hereunder are for the use of the Crown in Right of Ontario and are not subject to the Goods and Services Tax."

10/ Policy on Payment of Accounts

General government policy is to pay accounts within 30 days. This period is calculated from the date of receipt of valid and fully supported invoices to the date of cheque issuance. "Valid and fully supported" means the relevant goods or services have been received and conform with the contractual agreement. Where the 30-day period is exceeded, the policy is then to pay interest on the outstanding account upon request.

11/ Performance Appraisal

Upon completion of each project, a performance appraisal is made as to the manner in which the project was carried out, its success in meeting the stated objective (or reasons justifying why this was not possible), the completeness and applicability of the findings, the attaining of cost and time targets, and other relevant factors. A copy of this appraisal without recommendations is available upon written request by the investigator named in Schedule A. A copy of the form used for this purpose is displayed as Appendix G. Otherwise the appraisal is held confidentially on file as a future aid in judging proposals for related or follow-up work in the same area or of the investigator/consultant in connection with other proposals he/she may submit.

12/ Administration and Further Information

- 12.1/** Matters related to project approvals, funding, contracts, and questions related to general administration, submission of accounts, or other clarification on OJTRP and Consultant Assigned R&D should be addressed to:

Jamie Forrest
Co-ordinator Research Administration
R&D Branch
Ontario Ministry of Transportation
3rd Floor, Central Building, 1201 Wilson Avenue
Downsview, Ontario, Canada M3M 1J8
Phone: (416) 235-4636 Fax: (416) 235-4872

- 12.2/** Routine, day-to-day questions arising from invoices submitted, or other matters of project administration while the work is underway, are handled through the Research Secretary of the R&D office responsible for monitoring the project.

12.3/ Where noted in the agreements that approval in writing is required for any change (see 8.1) the request should be sent to the Director, R&D Branch at the above address by mail or fax prior to implementation.

12.4/ Further information on Transportation Regulation Program Highway Safety Research grants may be obtained from:

Safety Coordination & Development Office
Transportation Regulation Development Branch
Ontario Ministry of Transportation
2nd Floor, West Building, 1201 Wilson Avenue
Downsview, Ontario, Canada M3M 1J8
Phone: (416) 235-3620 Fax: (416) 235-4850

12.5/ Further information on the Transportation Technology & Energy Branch Programs may be obtained from:

Director,
Transportation Technology and Energy Branch
Ontario Ministry of Transportation
Room 333, 3rd Floor, Central Building, 1201 Wilson Avenue
Downsview, Ontario, Canada M3M 1J8
Phone: (416) 235-5040 Fax:(416) 235-4936

Appendix A/ OJTRP: History and Objectives

In September 1956, arrangements were completed between the Ontario Department of Highways and Queen's University and the University of Toronto for a joint highway research program. The universities were to conduct research on highway engineering problems for which the Department of Highways provided \$85,000 to cover costs for the first year. In 1990/91 the program funded almost \$555,000 of work, on 29 projects, across many disciplines, at nine Ontario universities or research establishments.

The agreement included, as a statement of intent, "The general purpose of the Programme is to undertake a substantial highway research programme, partly because of the practical value of the information this would make available, and partly to overcome the current shortage of technical manpower in the highway field by increasing the interest of undergraduate and graduate students in highway engineering as a career."

The acronym, OJHRP, soon became known and the program productive. One of the first students who worked under the program while at Queen's University, Gerry H. Johnston, is now the Ministry of Transportation's Assistant Deputy Minister, Planning. One of the early investigations at the University of Toronto, An Economic Study of Road Transport in Ontario reported "This is by no means a complete study of the problem of highway economics, rather it is a survey of one acute problem.The investigation also revealed certain specific areas of research of manageable proportions that need to be undertaken either by government transport authorities or by the transport industry."

In view of the many studies over the next 30 years, on the same issue of control of heavy vehicle gross and axle weights, some may question the authors', T.E. Kuhn and D.M. Winch, concept of 'manageable proportions'!

In the intervening years the program itself has undergone several manageable changes. In 1963, in recognition of the establishment of new engineering schools, the then Minister of Highways, the Hon. Charles A. MacNaughton announced that the Ontario Joint Highway Research Programme was now open to all universities on a project-by-project basis administered without a Joint Advisory Committee, as previously required. With a change of title in 1971 to the Ontario Joint Transportation & Communications Research Programme, the program further expanded to include any subject within the mandate of the Ministry of Transportation & Communications. The present title, Ontario Joint Transportation Research Programme (OJTRP)

was adopted in 1987 when responsibility for communications was transferred to another ministry.

When discussing R&D planning in the last issue of Research Reports, I mentioned that proposals are solicited early in each calendar year for OJTRP. Also, unsolicited proposals are always welcome for equal consideration. The problem in need of answer is usually sufficiently complex, profound, or intractable so as to require an in-depth approach from first principles or considerable extension of known techniques and methodologies to the new situation. As a result the investigations may be long term, and carried out in phases, with reviews as to whether to proceed or not as progress dictates. While most projects in past years have been concerned with the physical sciences or civil engineering related to highway aspects of transportation, there is no restriction on the disciplines that may contribute, other than the direct relevance of the work, to the objectives of the program.

The first objective of the program is to improve, through research and development studies, the planning, design, construction, maintenance, and operation of highways, and other transportation systems or facilities for which the Ministry is responsible. The second is to stimulate interest in these activities within universities and amongst their teaching staff and graduate and undergraduate students, thus developing related skills and expertise upon which the Ministry and others can draw in future years.

It should be noted that:

- o The second objective establishes a preference for the work to be carried out through their university within the academic program, rather than by investigators acting as consultants.
- o The program is project-specific, by contract and not by grant. Each project is under the terms and conditions of a standard agreement with the university or research establishment.
- o While funding is on a financial year basis (April 1 to March 31); for multi-year projects a commitment is made at the time of approval to the full project.
- o The programme is not directly applicable to studies at undergraduate level, though undergraduates may be of assistance in executing part of the work.

Appendix B/ Evaluation Criteria for External R&D Proposals



Ministry
of
Transportation

Research and
Development
Branch

Quality & Standards Division

Evaluation of Consultant or OJTRP Research Proposal

Title of Proposal:

Investigator:

Organization:

Date of Proposal:

Number of Proposals Received:

**Solicited by
Research Needs
Statement Number:**

Unsolicited:

To:

Your evaluation of the above proposal would be appreciated. Please conduct the evaluation in accordance with the criteria that follow, and provide written comments in support of each rating you give. Also, take into account the information governing proposal content and format, and terms and conditions for agreements, found in *A Guide to Consultant Research Assignments and the OJTRP* (December 1991 edition, OJTRP-1992). The technical content of the proposal should address any applicable Research Needs Statements (as shown above). At least two, preferably three, independent evaluations are needed for each proposal. In selecting the evaluation team, it is preferable that all be knowledgeable in the subject of the proposal and that at least one be from outside the R&D Branch.

If any details in a proposal are unclear, or essential items are missing, then clarification should be sought from the person submitting the proposal by the R&D Branch Program Manager or the designated project monitor. This may be done by phone and noted on the evaluation form with written confirmation to follow.

The evaluations, and ranking where more than one proposal addresses the same topic, are important inputs to developing the R&D Work Plan and in support of submission to the Consultant Assignment Committee.

Director
Research and Development Branch

Outstanding Very Good Good Fair Poor

1. Concept: Has the Investigator grasped what the problem and basic issues really are? (Just reiterating the Research Needs Statement suggests a poor/fair rating.)

2. Research Plan and Procedures: Has the investigator clearly stated an experimental design/methodology/project management approach; with whys, whats, hows, and whens in sufficient detail to appraise the chance of success and monitor progress against phases/tasks? (Lack of essentials in any of these respects suggests a poor/fair rating.)

3. Staffing: Are those who will work on the project identified and are their individual contributions clear? Are their capabilities documented by reference to qualifications, relevant past work, and published papers? (Impressive qualifications alone or evidence of over-commitment raises doubts and suggests a poor/fair rating.)

4. Facilities: The Investigator must have indicated either direct availability, or access by subcontract, to all the basic facilities needed. The Ministry is quite prepared to pay for special equipment, but not a whole new lab. (Lack of essential basic facilities suggests a poor/fair rating.)

Outstanding Very Good Good Fair Poor

5. **Likelihood of Success:** Considering 1 - 4 above (after obtaining any clarifications needed), my summary of the technical merit of the proposal is . . .

6. Cost and Time:

Total Cost: _____

Within target?

Overheads Proposed: _____

Completion Date: _____

Acceptable?

- Are these estimates reasonable?

7. Recommendation: Considering all the factors evaluated above, my final recommendation for this particular proposal is:

Not acceptable

Should be further considered

Where there are competitive proposals on the same topic:

• Is this particular one the lowest total cost? Yes No

• My overall ranking of this proposal is Number _____ out of _____ received.

Any concluding advice (such as your view as to priority of work, especially for unsolicited proposals)?

Name of Evaluator: _____

Signature: _____

Date: _____

Appendix C/ Memorandum of Agreement (Long Form)

Note: The Memorandum of Agreement presented in this appendix is worded to suit agreements with universities. The same wording is used for agreements with consultants except that "Consultant" is substituted for "University" where appropriate.

MEMORANDUM OF AGREEMENT as of the ____ day of ____ A.D. 19____.

BETWEEN:

HER MAJESTY THE QUEEN in right of the Province of Ontario, as represented by the Ministry of Transportation, the Province of Ontario,

hereinafter called the
"Ministry"

OF THE FIRST PART

-and-

hereinafter called the
"University"

OF THE SECOND PART

WHEREAS the Ministry wishes a Research and Development study to be made, titled,

hereinafter called the "Project"

And whereas it has requested the University to carry out the project in connection therewith; under the Ontario Joint Transportation Research Programme;

NOW THEREFORE THIS AGREEMENT WITNESSETH that in consideration of the premises and the mutual benefits and obligations herein the parties hereto agree as follows:

1. The University shall use the best available methods in carrying out the work and, except as otherwise provided herein, shall provide all personnel, services, materials, equipment, and facilities required to carry out the project described in Schedule A attached hereto and forming part of this Agreement.
2. The project shall be conducted in accordance with the specifications in Schedule A and no change in the scope of the project shall be made without the prior consent in writing of the Ministry.
3. The execution and completion of the project shall be the direct responsibility of the investigator or project manager named by the University in Schedule A and the University shall specifically assign to the project the staff listed in Schedule A in the capacity and at the rates shown for each. No change of listed senior staff or rate of remuneration shall be made without the prior consent in writing of the Ministry.
4. The Ministry shall name one of its staff in Schedule A who shall be responsible for the liaison between the Ministry and the University concerning the project.
5. (1) The University shall complete the project by the date set out in Schedule A at which time the final report as specified in Section 12 shall be submitted to the Ministry unless this date is extended to such later date as the Ministry may approve in writing.
(2) The Ministry may suspend or terminate the whole or any part of the Project upon 30 days notice in writing for failure by the University to diligently proceed with the project in reasonable compliance with the specification in Schedule A or for any other cause or causes.

- (3) Upon such notice having been given the University shall take immediate action to cancel all outstanding commitments relating to the Project and the Ministry shall only be liable for actual costs, as calculated from Section 6 and Schedule A, incurred by the University up to the termination date.
6. (1) The Ministry shall reimburse the University for costs incurred in carrying out the project in accordance with the following:
- (a) Salaries or wages of persons engaged on the project calculated in accordance with the rates provided for in Schedule A.
 - (b) The cost of capital or special equipment purchased or rented as provided for in Schedule A or subsequently approved by the Ministry but excluding charges for the use of general facilities, laboratory and other equipment of the University.
 - (c) The cost of materials, supplies and fabrications incidental to the project.
 - (d) The cost of services incidental to the project such as testing and processing but excluding the purchase or rental of such services where these are performed by the staff of the University assigned to the project using the general facilities, laboratory and other equipment or facilities of the University unless identified in Schedule A or approved by the Ministry in writing.
 - (e) The cost of computer services provided for in Schedule A or subsequently approved by the Ministry in writing.
 - (f) The costs of reasonable long distance telecommunications, postage and shipping charges incidental to the project.
 - (g) The cost of preparation and reproduction of graphic and printed material required for the final or interim reports but not to exceed the lump sum specified in Schedule A unless otherwise approved by the Ministry in writing.
 - (h) Reasonable travelling expenses necessarily incurred in performance of the Project and calculated at the rates, and for the items, applicable to Ministry staff, provided that the prior approval of the Ministry in writing has been obtained for any travel to locations not specifically identified in Schedule A as being locations where the project is to be carried out or which lie outside the Province.
 - (i) A lump sum for any fixed cost item or items as specified in Schedule A.
- (2) In addition to the amounts payable under Section 6 (1) the Ministry shall pay to the University a sum for overhead calculated in accordance with Schedule A.
- (3) (a) The total or annual cost of the Project shall not exceed the funds allocated in Schedule A unless approval has been given by the Ministry in writing.
- (b) If at any time the University has reason to believe that the cost of the project to the Ministry, either in total or on an annual basis, will exceed or be less than 10% or more of the amount provided for in Schedule A or otherwise approved in writing by the Ministry, the University shall immediately notify the Ministry in writing to this effect, stating the reason therefore and providing a revised estimate of the costs.
- (c) The University shall submit invoices as required by this Agreement and in a form acceptable to the Ministry for all work completed up to the 31st day of March each year not later than the fifth working day of April of the same calendar year.
- (4) The Ministry shall reimburse the University for costs incurred in carrying out the Project in accordance with Section 6 by interim payments based on invoices submitted in a form acceptable to the Ministry, not more frequently than the end of each month and not less frequently than each quarter, itemizing the staff by name

Example Memorandum of Agreement (Long Form)

and associated time or travel expenses, together with equipment, materials, services, and overheads as the case may be.

- (5) During the project a hold back of 10% shall be applied to each interim payment made as specified in Section 6 (4). The hold back will be released upon receipt of an acceptable final report of the project as required under Section 12.
- (6) The University shall not submit vouchers and substantiating documents with invoices for interim or final payments but shall retain them and make them available for audit by the Ministry at all reasonable times during the continuance of the Project and for 3 years after completion or termination of the Project.
7. (1) In this Agreement "Capital Equipment" means any article or assembly or equipment purchased or fabricated for use in the Project which is normally classified as a capital asset.
(2) Unless otherwise provided for in Schedule A, all capital equipment shall become and remain the property of the University but shall be applied solely to the execution of the Project, as and when required until its completion.
8. The University shall make prior disclosure to the Ministry of any intention to use funds, other than reimbursements arising from this Agreement, in support of the Project specified in Schedule A. Such a disclosure shall state the source and amount of the funds in question and the particular aspects of the Project to which it is intended they shall be applied.
9. The Ministry, or persons authorized by the Ministry, shall have the right at all reasonable times, to inspect or otherwise review the work performed under the Project and the premises in which it is being performed.
10. (1) The Ministry will furnish the University with those services and items listed in Schedule A together with such additional assistance as the parties hereto agree as being of mutual benefit for carrying out the Project.
(2) All charts, data, reports and documents, and other items furnished to the University by the Ministry shall remain the property of the Ministry and shall be returned to the Ministry upon completion of the Project.
(3) The University shall not disclose the contents of charts, data, reports or documents furnished by the Ministry, to anyone other than staff assigned to the project, without first obtaining the approval of the Ministry in writing.
11. (1) In this clause "subject data" means and includes all data, written material, photographs, drawings, computer programs and other information collected or created under the Project, whether delivered to the Ministry or not, but does not mean or include financial records, accounting records, and other information incidental to the administration of this Agreement.
(2) The University shall retain all subject data during the continuance of the Project and thereafter for a period of 3 years.
(3) Subject data shall be available for study and use by the Ministry so long as the subject data are in the possession of the University.
(4) The University shall not disclose subject data to any third party prior to acceptance and publication of final or interim reports of the project as provided for in Section 12.
12. (1) The University shall submit to the Ministry
 - (a) Progress reports at the end of each quarter calendar year; or if more appropriate
 - (b) Interim reports at the conclusion of each phase of the Project; and

Example Memorandum of Agreement (Long Form)

- (c) Unless otherwise provided for in Schedule A, upon completion of the Project a final report suitable for publication containing a concise statement of the findings and conclusions arising out of the Project, together with descriptions of the procedures and supporting data appropriate thereto.
- (2) The Ministry shall review the final report submitted under subparagraph 1, and if necessary, negotiate with the University any changes which may be deemed desirable in the interest of clarity, completeness, or consistency.
- (3) Unless otherwise agreed to by the Ministry in writing, final reports shall be provided to the Ministry in the following form:
 - (a) Camera-ready copy suitable for publication to a standard acceptable to the Ministry.
 - (b) A disc copy is also required in a standard disc format such as AES, MS-DOS, Macintosh, Wang, or NBI. Other formats may be acceptable if cleared beforehand with the Editor, Technical Publications, Research and Development Branch.
- (4) Unless otherwise provided for in Schedule A.
 - (a) The Ministry shall then publish the final report in the Ministry of Transportation Research and Development Report Series and distribute copies to the appropriate organizations and individuals giving full consideration to recipients suggested by the University and project staff.
 - (b) The University may, following the publication and distribution by the Ministry of the final report under subparagraph 4 (a), reproduce the final report for its own purposes.
 - (c) The Ministry may from time to time publish reports on the progress of the Project including substantive information contained in the progress or interim reports submitted under subparagraph 1.
 - (d) Either party hereto, in consultation with the other may, after the final report has been submitted by the University and accepted by the Ministry or six months after the report has been submitted, whichever event shall first occur, prepare articles for publication in the commercial press or the journals of professional societies, or papers for presentation at conferences or conventions which deal with either the whole project or with significant parts or the methods, procedures, or results thereof.
 - (e) The University shall not, before the final report has been submitted to and accepted by the Ministry, or six months after the final report has been submitted, whichever event shall first occur, prepare any articles or papers based on the Project except with the prior approval in writing of the Ministry. Nothing contained herein shall prevent the submission of a thesis, containing information obtained as a result of work under this Project, by a graduate student to a thesis committee, or the incorporation of such information by a student into an unpublished class assignment.
 - (f) All reports, articles, and papers prepared by the Ministry or the University shall give prominent recognition to the joint nature of the Project, the University and the individuals involved in the Project and in the writing of the Report, but all such reports, articles and papers shall, 30 days before publication, be submitted by the author to the other party to this Agreement and if the other party so requests it, the other party shall not be mentioned in any way in the reports, articles or papers.
- (5) (a) All units of measurement in the final report shall be expressed in the Canadian Metric System exclusively unless otherwise approved by the Ministry or specified in Schedule A. Canadian Metric System units and usage shall be in accordance with Metric Practice Guide, National Standard of Canada, CAN3-Z234.1 current at the time of reporting.
- (b) Where approved by the Ministry or specified in Schedule A that units of measurement in the final report are to be expressed in both the inch/pound system and in the Canadian Metric System, they shall be displayed in the following manner:

Example Memorandum of Agreement (Long Form)

source unit followed by equivalent in parentheses (),

for example: 25 mm (1 inch)

 1 inch (25 mm),

depending on which is the source unit.

- (6) The Ministry or the University, when publishing the final report of the Project, shall include the following statement on one of the inside covers of each copy of the Report printed — "This report is published without prejudice as to the application of the findings".
13. (1) The University shall make a prompt written disclosure to the Ministry of any patentable invention, improvement or discovery conceived or first actually reduced to practice in the performance of the Project and shall submit separately or as part of the final report on the Project a complete list of all such inventions, improvements, and discoveries including those previously disclosed.
- (2) Any patentable rights or other rights in any invention, improvement, or discovery conceived or actually reduced to practice in the performance of the Project shall be the property of the Ministry unless otherwise provided for in Schedule A or otherwise approved by the Ministry.
- (3) When provided in Schedule A that any patentable rights or other rights in any invention, improvement or discovery conceived or actually reduced to practice in performance of the Project shall be the property of the University, then the University shall grant the Ministry or its nominee an irrevocable, non-exclusive, royalty-free licence to practice or cause to be practiced such rights for the purposes of the Government of Ontario, its Agencies and Municipal Governments in Ontario.
14. Wherein this Agreement the consent or approval of the Ministry is required, such consent or approval may be given by the Director, Research & Development Branch, of the Ministry of Transportation.
15. This Agreement shall not be assigned in whole or in part, except as provided for in Schedule A, without the prior consent in writing of the Ministry.
16. Statement of Use – Goods and Services Tax
In order to facilitate any input tax credit claim; it is certified, by the signer on behalf of the Ministry of Transportation of this agreement, that the goods and services furnished hereunder are for the use of the Crown in Right of Ontario and are not subject to the Goods and Services Tax.

IN WITNESS WHEREOF the Director, Research and Development Branch, Ministry of Transportation of Ontario, on behalf of the party of the First Part has hereunto set his hand and the party of the Second Part has affixed its Corporate Seal attested by the hands of its proper officers duly authorized in that behalf.

Witness: _____

) MINISTRY OF TRANSPORTATION
) (ONTARIO)

) Per:
) Director, Research and
) Development Branch

Witness: _____

) Per:

) Per:

SCHEDULE A

PROJECT SPECIFICATION

(NOTE: Deviation from any item herein requires approval of the Ministry in writing.)

Project Number: _____

Project Title: _____

Ministry staff member responsible for liaison: _____

Investigator or Project Manager responsible for Project:

Name & Title: _____

University: _____

Authorized Subcontractor(s) _____

Project Staff and Rate of Remuneration: _____

Capital, Special Equipment or Services Authorized: _____

Computer Services Authorized: _____

Report Preparation: Lump Sum _____

Overhead: _____

Initialled:

For the Ministry:

For the University:

Example Memorandum of Agreement (Long Form)

Methods, Procedures and Schedule to be followed: _____

Location(s) where the Project is to be carried out: _____

Funds Allocated:

The total amount payable by the Ministry under this agreement shall not exceed \$. Subject to appropriation by the Legislature, funds have been allocated as follows in accordance with the terms and conditions of this agreement, the project work schedule, and the completion date:

Year Ending March 31, 19	Year Ending March 31, 19	Total
-----------------------------	-----------------------------	-------

Completion date: _____
 (Date for submission of Final Report)

Services or other items to be provided by the Ministry: _____

Special Conditions: _____

And all otherwise in accordance with:

The proposal " _____ "
 dated _____ submitted by _____ .as revised _____

Initialled:

For the Ministry:

For the University:

Appendix D/ Executive Director's Letter of Agreement (Short Form)



Ministry
of
Transportation

Research and Development Branch
1201 Wilson Avenue
Downsview, Ontario
Canada M3M 1J8
Phone No. (416) 235-4636
FAX (416) 235-4872

_____, _____, 199__

Dear _____:

Re: R&D Project No.: _____

Entitled: _____

Agreement No. _____ - _____ - _____

This letter will serve to confirm that the Ministry requests you to provide professional/technical research and development services (the services) for the above-noted R&D project, as further defined in Schedule "A" attached. The completion date for the services shall be _____, _____, 199__.

The total amount payable for the services shall not exceed \$ _____.00.

In order to facilitate any input tax credit claim; it is certified, by the signer on behalf of the Ministry of Transportation of this agreement, that the goods and services furnished hereunder are for the use of the Crown in Right of Ontario and are not subject to the Goods and Services Tax.

You are required to submit itemized invoices at the end of each calendar month detailing the portion of the services performed in that month. Vouchers and receipts in support of the items invoiced need not be submitted but shall be retained for a period of three years after completion of the services and be made available for audit by the Ministry upon request. Unless otherwise stated, reimbursement for travel and living expenses shall be for the items and at the rates currently applicable to Ministry staff. Each invoice submitted for interim payment shall provide for a 10% holdback pending completion and acceptance of the services. The final invoice shall include all monies held back. Acceptance shall be signified by approval of the final invoice for payment.

The Ministry reserves the right to terminate the agreement if your performance falls below acceptable standards; or if the services are no longer required in furtherance of the R&D project; or if the Legislature fails to appropriate funds for continuance of the R&D project. Upon receipt of a notice of termination for any of the foregoing causes you shall terminate all work associated with the provision of the services immediately. The Ministry shall be responsible only for the cost of the services

Example Executive Director's Letter of Agreement (Short Form)

performed prior to the date of cancellation and for costs which you incur as a result of the termination, as long as these are reasonable.

The Ministry staff member responsible for technical matters related to the project is _____. He/she can be contacted at the letterhead address and fax number or by telephone at (416) 235-_____. All invoices and other administrative matters should be addressed to The Co-ordinator Research Administration, Research and Development Branch, at the letterhead address. The R&D Project Number and this Agreement Number should be shown on all invoices and correspondence.

Any change in the terms and conditions of this letter of agreement, including the details and special conditions in Schedule A, requires prior written approval from the Director, Research and Development Branch on behalf of the Ministry.

If you agree with the terms and conditions of the agreement, please sign the original and second copy of this letter and place your initials in the designated spot on Schedule "A" and return to The Co-ordinator Research Administration, Research and Development Branch. The third copy of this letter of agreement is for your records.

Yours truly,

Executive Director
Transportation Engineering and Standards Branch

Accepted by:_____

Date:_____

Schedule "A"

Attachment to Agreement No.: _____

for R&D Project No.: _____ - _____ - _____

Details of Services to be provided: _____

Special Conditions, including any services to be provided by the Ministry: _____

Initialled: _____

For the Ministry: _____

For the University: _____

Appendix E/ Style Sheet for Ministry Reports

2

Technical Publications' Style Sheet for Ministry Reports

Basic Specs

- Standard letter size $8\frac{1}{2} \times 11$. (Use plain white paper, no letterhead or logos.)
- Type in 10-point Times Roman if you can; if you can't, use 10-pitch Prestige Elite or a similar typeface with serifs.
- Line spacing $1\frac{1}{2}$ with 1-inch margins.

Front Matter

Should include the following:

- a title page (including title of report, author(s) name and position and company or university);
- a table of contents;
- a list of tables and a list of figures;
- a short (two or three paragraph) abstract on a page by itself;
- acknowledgements and/or executive summary (for long reports) may also be part of the Front Matter.

Body

If your system can do Times Roman, justify both margins. If your system cannot do Times Roman, body copy should be flush left, ragged right. Paragraphs should be differentiated by extra line space only, no indent. (Note — where indents are required, and in setting up tables, *please set tabs...* don't align characters with the space bar.)

Print on one side of the page only. Number all pages consecutively. Front matter should be numbered in small Roman numerals. There should always be an "Introduction" and it should always begin the text. The first page of the Introduction is Page 1. Number pages consecutively from Page 1 to end of report in

conventional Arabic numbers. Do not use compound numbers (e.g. A2.4 for Appendix 2, page 4) for appendices, just carry on with the conventional page numbers.

Use Canadian metric notation. Do not write out units, e.g., use "10 km" not "ten kilometres" and say "10%" not "10 per cent" or "ten percent". In general, spell out whole numbers below 10 and use figures for 10 and above, e.g., "Of 21 tests, only five were successful". Use Canadian, not American, spelling. Oxford is the dictionary of first resort.

Treatment of Headings

Treat text and headings in the style shown below:

1/ Chapter Heads

Bold face, upper & lower case, centred at top of page, followed by one line space. Chapter One is always called "Introduction".

1.1/ Subsection Heads

Bold face, upper and lower case, flush left, not followed by one line space.

1.1.1/ Sub-Subsections

Bold face, upper and lower case, flush left, not followed by a line space.

1.1.1.1/ Supplementary Heads -- Same as above, or follow the heading with an m-dash (use two hyphens if no dash available). There should be a space on each side of the m-dash; and begin text directly afterward. You can also use this run-in style for un-numbered Supplementary Heads.

Back Matter

Includes References, Tables, Figures, and Appendices (in that order). References should include only those materials referred to in the text; otherwise, you need a bibliography. They should be numbered consecutively and should follow this style:

Lastname, A., Surname, B., "How to Format References," Ministry of Transportation, Report XXX-87-02, Downsview, Ontario, 1989.

Note that the comma is enclosed within the quotation marks.

Appendices are intended to supplement the main text, they should not be a dumping ground for all technical data relating to the project. Therefore, they should be kept brief and only used where the information is vital to understanding the import of the main text. Do not include material copied directly from other sources; rather, refer the reader to these sources with an address and phone number.

Often authors use materials from commercial brochures. This is discouraged because usually it doesn't reproduce well. It also violates copyright law unless you obtain the company's permission. The author is responsible for obtaining such permission.

Any non-textual material should be referred to as either a "table" or a "figure" — terms such as "Exhibit", "Photo", "Plate" or "Drawing" are discouraged. Tables and figures should be placed in order at the back of the text and numbered consecutively (do not give them compound numbers incorporating the chapter numbers).

Tables and figures must fit within a one-inch margin on an $8\frac{1}{2} \times 11$ page. One should go to great lengths to avoid use of fold-outs or overlays as they cause enormous production problems and additional expense.

Each table and figure should be referenced in the text. For example:

"mulch was applied at a rate of 1600 kg/ha (see Figure 5)." or

"The germination curve, as seen in Figure 7, is related to...".

Table captions should be bold, in upper and lower case, centred above the table. Figure captions should have the same treatment except that they should be centred below the figure.

Photographs should be supplied in a separate envelope in the form of black & white or colour prints (glossy or matte, not textured). We do not need the negatives if you give us a good quality print. Use a copy of the photos in the manuscript for identification and positioning.

If your manuscript includes drawings done on a plotter, please use quality paper. Remember that a drawing or plot will normally be reproduced in black & white; most often we scan it and redraw it with dotted and dashed lines to differentiate the curves.

Submission Options

Although we ask for reports in "camera ready" form, we reserve the option to edit the document or perhaps to incorporate small changes at the advice of the Ministry official monitoring the project. For these reasons, we also want a disk copy of the report. Our preferences in terms of software media are, in order:

- * Microsoft Word, WordPerfect or MacWrite on the Apple Macintosh
- * Microsoft Word, WordPerfect 4.2, OfficeWriter 6.0, or any other MS-DOS word processor that supports a variety of file formats or can be converted to DCA or ASCII.
- * AES, Wang, Micom or other mainstream word processing format.
- * ASCII.
- * Data files in Lotus 1,2,3 or Excel are quite acceptable, as are drawing files in AutoCad (PC) or any of the Macintosh drawing programs.

Whatever you use, please put a note on the disc identifying the program and version number used. If there are any questions, please contact either Cindy Lucas at 235-4703 or Rob Lockhart at 235-4704.

Appendix F/ Sample Invoice

Sample Invoice (See Section 8.9)

Your Name and Address

Invoice No: _____

Date: _____

Agreement No: _____

Covering Period: _____

Title of Agreement

Ministry Project No: _____

Authorized Staff

Rate

Time

Cost

Materials & Supplies:

Total of Invoice: _____

Disbursement:

Less 10% Holdback: _____

Overhead:

Amount Payable: _____

For current Fiscal Year Only (Amounts Exclude Holdback)

Previous Balance	Present Invoice	Unexpended Balance

Invoices are required not less than monthly and not more than quarterly intervals for work carried out in the period.

Note:

- (i) Receipts and vouchers in support are not required but must be retained for audit.
- (ii) Disbursements should be divided between travel costs and other costs (eg. photocopying, telephone, consumables, etc.) especially where different overheads apply.
- (iii) Travel costs need to be broken down into distance (and rates), accommodation and meals and any other items in order to verify that the rates charged are those specified in the agreement. These are normally the same rates as would be applicable to Ministry staff.

Appendix G/ External R&D Proposals – Performance Evaluation



Ministry
of
Transportation

Research and
Development
Branch

(CONFIDENTIAL when containing recommendations)

EXTERNAL R&D PROJECT PERFORMANCE EVALUATION

Agreement No.: _____ Project No.: _____

TITLE OF PROJECT:

University/Consultant: _____

Investigator/Project Manager: _____

Cost: Original Estimate _____

Final Cost _____

Over/Under run _____

Reason: _____

SCHEDULING:

Original Completion Date: _____

Actual Completion Date (Final Report Received): _____

Reason for early/late completion: _____

ACHIEVEMENT:

Does the final report satisfy the expectations of:

(1) The project proposal? Yes No

(2) R&D Needs Statement No. _____? Yes No

(3) if "no", briefly list deficiencies. _____

(4) For what reason did these deficiencies arise? _____

List any facts arising from this project which would influence the further selection of the organization or staff concerned, to undertake R&D work for the Ministry in the future.

Final Report (including computer programs, if any) of the project is recommended for acceptance by the Ministry, any changes necessary to fulfil the terms of the agreement having been made. It is further recommended that the report be published _____ not published _____ as a Ministry Research Report. Where the recommendation is not to publish, state reason and the disposition of the report.

Signed: MTO Project Manager _____ Date: _____

Signed: Program Manager _____ Date: _____

Director's Comments: _____

Reports on Project No. _____ accepted and release of 10% holdback authorized.

Signed: _____ Date: _____
(Director, Research and Development Branch)

